



Bet you
can't eat
just one!

By
Stephen
Fraser

BUG BITES



Twenty years ago, Florence Dunkel was working as a consultant in the African country of

Rwanda. Dunkel is an *entomologist*—a scientist who studies insects—at Montana State University. One day in the capital city of Kigali, she spotted children collecting big brown locusts under the streetlights. She bought some of the insects and took them to the chef at the hotel where she was staying. “He sautéed them in butter,” she says.

Since that episode, Dunkel has become the Martha Stewart of insect cooking. She stir-fries insects for her students at the university and travels the country teaching audiences how to whip up tasty dishes with moth larvae, wax worms, and beetles, to name just a few.

Why would an educated person such as Dunkel put creepy-crawlies in her mouth? Aren't they icky?

TASTY TARANTULAS

Eating insects is called *entomophagy*. It's a common practice in many parts of Asia, Africa, and Latin America. In the African country of Ghana, termites are fried, roasted, or made into bread. On the Indonesian isle of Bali, dragonflies are boiled in coconut milk with ginger and garlic. Venezuelans feast on fire-roasted tarantulas. Altogether, about 1,200 species of insects are documented parts of the human diet. Until the mid-19th century, insects also appeared on menus in Europe, including those at the most elegant restaurants in Paris.

Worldwide, the most popular edible insect is the grasshopper, followed by the moth larva. “To

me, grasshoppers taste like soft-shelled crabs,” says Dunkel. “They're crunchy.”

Like Dunkel, David Gracer is an entomophagist. He became hooked on insects when a friend offered him Larvets, dry-roasted mealworms dusted with flavorings. He has since dined on everything from beetle grubs to stinkbugs to scorpions. (When cooked, scorpion venom loses its toxicity.)

Today, Gracer owns Sunrise Land Shrimp in Providence, R.I., which sells dried and frozen insects to restaurants and individuals around the country. He gets the insects from farms where grasshoppers, crickets, mealworms, wax worms, and even cockroaches are bred. The insects are raised in cages in small rooms that have day-night cycles and plenty of ventilation.



Entomologists estimate that 10 quintillion insects share Earth with us. Farming mini livestock (insects) requires little water, energy, or land, says Gracer. For that reason, he believes they could become an even more important part of the human diet in years to come—an eco-friendly alternative to cattle and other macro livestock that put much bigger demands on the environment. “Insects can feed the world,” he says. “Cows and pigs are the SUVs; insects are the bicycles.”

CULTURAL BIAS

Gracer acknowledges the “ick factor” in entomophagy. Some of that revulsion, he says, comes from cultural conditioning. To help people overcome their insectophobia, he appeals to dietary logic and their sense of adventure.

Look at it this way: Insects are *arthropods*, as are shrimp, lobsters, and crabs. An arthropod—the word means “jointed feet”—is an animal that has an exoskeleton and a segmented body with joints. You probably eat shrimp, lobster, and crabs, so why not insects?

At a nutritional level, insects are no different from many other foods. They’re full of fat, protein, vitamins, and minerals (see table). One-third of a cooked caterpillar is protein, and a serving of water bugs contains four times the iron in a serving of beef. The fat in insects tends to be *unsaturated*—the healthy kind of dietary fat. Unsaturated fat tends to lower the level of cholesterol in the blood.

Still not convinced? Consider this: We all eat microscopic pieces of insects in the flour, rice, fruits, and vegetables that make up our diet. The U.S. government regulates how many insect parts are permissible in every food item. For example, 100 grams of peanut butter is allowed to contain 30 insect bits. On average, an American consumes about 1 pound of insect fragments per year!

COOK BEFORE EATING

Some insects are truly icky. Dunkel advises people to avoid brightly colored insects, such as the monarch butterfly and the ladybug. Both are bitter and *emetic*—they induce nausea and vomiting. “Insects and centipedes have evolved color as a signal to birds and other insects that says, ‘Don’t eat me; I will make you sick,’ or ‘Don’t touch me; I will sting you, and it will hurt,’” she says.

Like cows and pigs, insects can also carry diseases. So she warns, “Never, never eat a raw insect unless you are in danger of dying of starvation. And don’t respond to dares from a buddy.

“And know where your insects come from,” she adds. “In this country, there are too many pesticide-sprayed fields to collect wild insects.”






Dunkel thinks insects might enter the American diet as appetizers. On her plate, they are a main course.

“Once you smell the odor of sautéed grasshoppers or chutney-cream cheese-silkworm pupae on a cracker or taste a wax moth larva-apple cinnamon fritter, you have no problem with similar foods,” she says. “They are simply great!”

Are you ready to dig in? **CS**



Good for You A 100-gram serving of each of the five animals listed contains the nutrients shown in the accompanying table.

	Protein (grams)	Iron (milligrams)	Thiamine (milligrams)	Riboflavin (milligrams)	Niacin (milligrams)
 Termite (<i>Macrotermes subhyalinus</i>)	14.2	0.75	0.13	1.15	0.95
 Caterpillar (<i>Usata tersichore</i>)	28.2	35.5	3.67	1.91	5.2
 Weevil (<i>Rhynchophorus phoenicis</i>)	6.7	13.1	3.02	2.24	7.8
 Beef (Lean ground)	27.4	3.5	0.09	0.23	6.0
 Fish (Broiled cod)	28.5	1.0	0.08	0.11	3.0

Protein: The nitrogen-based material in food that is essential for the growth, repair, and replacement of tissues.

Iron: This mineral is an essential part of *hemoglobin*, the substance in red blood cells that carries oxygen through the bloodstream.

Thiamine (vitamin B1), riboflavin (vitamin B2), and niacin (vitamin B3): Like all the other B vitamins, thiamine, riboflavin, and niacin play important roles in the chemical reactions that occur in the body’s cells.

Source: Ohio State University